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भारतीय मानक
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(तीसरा पुनरीक्षण)

Indian Standard
BLEACHING SYNTANS — SPECIFICATION
(*Third Revision*)

ICS 59.140.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

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Price Group 3

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Leather, Tanning Materials and Allied Products Sectional Committee had been approved by the Chemical Division Council.

Synthetic tanning agents or syntans are high molecular organic compounds or mixtures of such compounds. They are proprietary products, which are synthetically prepared to meet the necessary requirements of leather manufacture. Most of the bleaching syntans are manufactured from naphthalene. These syntans are meant for bleaching of vegetable and chrome tanned leathers and as such the tannin content in the bleaching syntan and its effect in raising shrinkage temperature are not very important criteria, hence these have not been prescribed in this standard. Since the bleaching syntans are not meant for tanning, the normal criteria of increase in shrinkage temperature of the leather obtained, using the syntans, do not apply for the bleaching syntans. The bleaching syntans are used to impart bleaching effect on leather.

This standard was originally published in 1982 as 'Specification for auxiliary syntan (bleaching and pretanning types)'. The Committee responsible for the formulation of this standard felt that materials covered by this standard should prescribe the bleaching syntan only and hence the standard was revised in 1986. During the second revision of the standard in 1993, the requirement of iron content was restored in this standard in view of demand for the same.

In this revision, a test method has been introduced to estimate pentachloro phenol (PCP), keeping in view of the demand for eco-friendly inputs from the leather industry.

The composition of the Committee responsible for formulation of this standard is given in Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

BLEACHING SYNTANS — SPECIFICATION

(*Third Revision*)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for bleaching syntans in powder and liquid form for leather industry.

2 REFERENCES

The following standards are necessary adjuncts to this standard.

<i>IS No.</i>	<i>Title</i>
1640 : 2007	Glossary of terms relating to hides, skins and leather (<i>first revision</i>)
4905 : 1968	Method for random sampling
13271 : 2009	Syntans — Methods of test (<i>first revision</i>)

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1640 shall apply.

4 REQUIREMENTS

4.1 General

The material shall be in the form of powder or liquid.

4.2 Chemical Requirements

The bleaching syntans shall comply with the requirements as given in 4.2.1 to 4.2.6.

4.2.1 Total Solid Content

- a) *For liquid syntan* — It shall be not less than 60 percent when tested in accordance with the method prescribed in 8 of IS 13271; and
- b) *For powder syntan* — It shall be not less than 88 percent when tested in accordance with the method prescribed in 8 of IS 13271.

4.2.2 Total Ash Content

It shall not be more than 30 percent, when tested in accordance with the method prescribed in 16 of IS 13271.

4.2.3 Salt Content (as Na_2SO_4)

It shall not be more than 30 percent when tested in accordance with the method prescribed in Annex A.

4.2.4 pH

It shall be between 1.3 and 2.0 when a 10 percent

solution is tested in accordance with the method prescribed in 13 of IS 13271.

4.2.5 Total Solubles in Water

It shall be between 96 to 100 percent when tested in accordance with the method prescribed in 9 of IS 13271.

4.2.6 Iron

It shall not be present by more than 5 ppm of the material, when tested in accordance with the method prescribed in 15 of IS 13271.

4.2.7 Freedom from Pentachlorophenol (PCP)

The material shall not contain more than 5 mg/kg of pentachlorophenol when tested in accordance with 17 of IS 13271.

4.3 Optional Requirements for Performance

The bleaching syntan shall bleach the colour uniformly and remove minor metallic stains on the leathers when tested in accordance with the method given in Annex B for determination of the extent of bleaching.

5 PACKING AND MARKING

5.1 Packing

Unless otherwise agreed to between the purchaser and the manufacturer, the bleaching syntans shall be packed in moisture proof containers, like gunny-paper bags, suitably lined with moisture proof paper or polyethylene film in the case of powder syntan or in epoxy or otherwise suitably coated drums/carbuoys or jerrycans, in the case of liquid syntans.

5.2 Marking

The containers shall be marked with the following information:

- a) Name of the material;
- b) Net mass of the material;
- c) Manufacturers name or its recognized trade-mark, if any;
- d) Batch/Code No.; and
- e) Month and year of manufacture.

5.2.1 BIS Certification Marking

The containers may also be marked with Standard Mark.

5.2.1.1 The use of the Standard Mark is governed by the provision of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

6 SAMPLING AND CRITERIA OF CONFORMITY

6.1 Lot

All the containers of the same capacity containing bleaching syntans manufactured from the same material under similar conditions of production shall constitute a lot.

6.1.1 Sample shall be tested from each lot separately for ascertaining conformity of the material to the requirements of this standard. The number of containers to be selected from each lot (n) shall depend on the size of the lot (N) and shall be as given in Table 1.

Table 1 Number of Containers to be Selected for Sampling
(Clauses 6.1.1, 6.1.2 and 6.4.1)

Sl No.	Lot Size N	Number of Containers to be Selected n	Constant Factor k	$R/U-L$
(1)	(2)	(3)	(4)	(5)
i)	Up to 100	3	1.6	0.8
ii)	101-300	4	0.5	0.8
iii)	301 and above	5	0.5	0.9

6.1.2 These containers shall be selected at random from the lot. For this purpose, reference may be made to IS 4905. If such a random number table is not available, the following procedure may be adopted:

Starting from any container count 1, 2, 3, etc, up to r and so on in a systematic manner and withdraw the r th container, r being the integral part of N/n ; where N is the total number of containers in the lot, and n the number of containers to be selected according to Table 1. Every r th container thus counted shall be selected till the required sample size is obtained.

6.2 Preparation of Test

6.2.1 Representative test samples of the material shall be prepared as prescribed in 6 of IS 13271. Shake/mix well each of the containers thus selected. From each of the containers a representative portion of the material sufficient to carry out tests as given in 6.3 shall be taken out.

6.2.2 Out of the portions collected from each of the selected containers, an equal quantity of the material

shall be taken and mixed thoroughly to form a composite sample. The composite sample so formed shall be divided into three equal parts, one for the purchaser another for the supplier, and the third for the referee.

6.2.3 The remaining portion of the sample from each container shall be divided into three equal parts and each such separate part shall constitute an individual sample. One set of individual samples (representing the n containers selected) shall be marked for the purchaser, another for the supplier and the third for the referee.

6.2.4 All the individual and composite samples shall be immediately transferred to separate glass bottles and shall be labelled with full identification particulars of the samples.

6.2.5 The referee sample shall bear the seal of both the purchaser and the supplier. These shall be kept at a place agreed to between the purchaser and the supplier and shall be used in case of dispute between the two.

6.3 Number of Tests

Tests for the remaining characteristics shall be conducted on composite samples.

6.4 Criteria for Conformity

6.4.1 For Total Solids Content

The lot shall be considered as conforming to this requirement if $(\bar{X} - kR) \geq L$ is satisfied, where \bar{X} is the mean of all the results of samples taken, R is the range, L is the lower specification limit for total solids content and k is constant factor, the value of which is given in Table 1.

6.4.1.1 For pH value

The lot shall be considered as conforming to this requirement, if all of the following conditions are satisfied:

- $R/(U - L) \leq$ the value given in 4.2.4.
- $(\bar{X} + kr) \leq U$
- $(\bar{X} - kr) \geq L$

where L and U are the lower and the upper specification limits for pH value, and k is a constant factor given in Table 1.

6.4.2 For Composite Sample

A lot shall be declared as conforming to the requirements for the remaining characteristics, if the test results satisfy the requirements prescribed in 4.2.2, 4.2.3, 4.2.5, 4.2.6 and 4.2.7.

6.4.3 The lot shall be deemed as conforming to the requirements of the specification, if 6.4.1 and 6.4.2 are satisfied.

ANNEX A

(Clause 4.2.3)

DETERMINATION OF SALT CONTENT

A-1 PREPARATION OF 0.1 N SODIUM HYDROXIDE SOLUTION

0.1 N sodium hydroxide solution is prepared by taking 4 g sodium hydroxide (analytical reagent) and making up the solution to one litre in a standard flask. The strength of this made up solution has to be determined by titrating against 0.1 N standard potassium hydrogen phthalate solution using phenolphthalein as an indicator.

A-2 PROCEDURE

Take 50 ml of the 1 percent syntan solution prepared for determination of total solid content, and pass through a Dowex 50 WX 8 (H⁺) resin column (50 g resin, packed in an ion exchange resin column 1.5 × 40 cm and thoroughly washed with distilled water) and elute with distilled water. Finally wash the column with about 300 ml distilled water. The eluate and the

washings are to be mixed and titrated against 0.1 N standard sodium hydroxide solution using a pH meter. A blank titration is to be done taking 50 ml of the syntan solution diluted to the same volume with water, but without passing through the ion exchange resin column. Calculate the percentage of salt content, expressed in terms of sodium sulphate.

A-3 CALCULATION

$$\text{Salt content, percent by mass} = \frac{(a - b) \times 0.071}{M_1} \times 20 \times 100$$

where

- a = volume of 0.1 N sodium hydroxide solution required for the experiment;
- b = volume of 0.1 N sodium hydroxide solution required for blank; and
- M_1 = mass of syntan sample taken for test, in g.

ANNEX B

(Clause 4.3)

TEST FOR OBSERVING BLEACHING OF LEATHERS

B-1 PROCEDURE

Wash fully vegetable tanned leathers/chrome wet blue leathers in a drum with 400 percent water for 10 min and then pile up for 1h. Take the sammed leathers in a drum. According to the original colour of the leathers, dissolve 1 to 2 percent of syntan (containing 5 to 6 percent of moisture) in 50 percent of warm water (37°C

to 40°C) calculated on the basis of sammed weight of tanned leathers. Add the syntan liquor through the hollow axle of the running drum. Run the drum for 30 min. Lightly rinse the leathers in plain water. Compare the colour of the treated leather with a specimen of the untreated leather carried through the above procedure, using Grey scale. The higher the contrast, the better would be the bleaching property.

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Leather, Tanning Materials and Allied Products Sectional Committee, CHD 17

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones : 2323 0131, 2323 3375, 2323 9402

Website: www.bis.org.in

Regional Offices:

Telephones

Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	{ 2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	{ 260 3843 260 9285
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